

WHAT IS CLAIMED IS:

1. A method for identifying a cell susceptible to a selected chemical agent, comprising:

- 5 (a) identifying a cell susceptible to a test compound wherein said susceptibility depends on a change in expression profile of a set of genes whose expression levels are changed in the susceptible cell due to said test compound (b) identifying a different cell from said susceptible cell wherein said different cell expresses the set of genes in the absence of treatment with  
10 test compound in (a) with the expression profile of said set of genes of said susceptible cell in the absence of treatment with a test compound,  
wherein said expression profile identifies said different cell as being a cell susceptible to said test compound  
thereby identifying said different cell as a cell susceptible to said  
15 selected chemical agent.

2. The method of claim 1 wherein said susceptibility is manifested by an inhibition of growth of said susceptible cell.

- 20 3. The method of claim 2 wherein said inhibition of growth is the death of said susceptible cell.

4. The method of claim 2 wherein said inhibition of growth is a cessation of multiplication of said susceptible cell.

25

5. The method of claim 1 wherein said different cell is a cell of the same tissue type as said susceptible cell.

- 30 6. The method of claim 1 wherein said different cell is a cell of the same species as said susceptible cell.

7. The method of claim 1 wherein said susceptible cell is a cancer cell.

8. The method of claim 1 wherein said different cell is a cancer cell.

5 9. The method of claim 1 wherein said different cell is a non-cancer cell.

10. The method of claim 1 wherein said susceptible cell is a human cell.

10 11. The method of claim 1 wherein said different cell is a human cell.

12. A method for identifying a cell susceptible to a selected chemical agent, comprising:

15 (a) contacting a test compound with a cell and determining inhibition of growth of said cell due to said contacting thereby identifying said cell as a susceptible cell,

(b) determining a change in the expression profile of a set of genes expressed by said susceptible cell wherein said change is due to said contacting thereby identifying said set of genes as an affected gene set,

20 (c) determining the expression profile of said affected gene set of said susceptible cell in the absence of said contacting and thereby identifying a basal expression profile for said affected gene set,

(d) determining said basal expression profile for said affected gene set for a different cell from said contacted cell,

25 wherein said basal expression profile for said affected gene set indicates a cell susceptible to said test compound

thereby identifying said different cell as a cell susceptible to said selected chemical agent.

30 13. The method of claim 12 wherein said expression is transcription.

14. The method of claim 12 wherein said change in expression profile of (b) is determined by determining synthesis of RNA.

5 15. The method of claim 12 wherein said change in expression profile of (b) is determined by determining polypeptide synthesis.

16. The method of claim 12 wherein said change in expression profile of (b) is determined by determining enzyme activity.

10 17. The method of claim 12 wherein said determining in step (c) comprises retrieving said basal expression profile from a database.

15 18. The method of claim 12 wherein said determining in step (d) comprises retrieving said basal expression profile from a database.

19. The method of claim 12 wherein said determining of step (c) and (d) each comprises retrieving said basal expression profile from a database.

20 20. A method for treating a disease in a mammal comprising administering to a mammal afflicted with said disease a therapeutically effective amount of the test compound of claim 1 wherein said disease is caused by a cell having the expression profile of step (b) of claim 1.

25 21. The method of claim 20 wherein said mammal is a human being.

22. The method of claim 20 wherein said disease is cancer.

23. A method for producing test data with respect to the susceptibility of a cell to a selected chemical agent, comprising:

30 (a) identifying a cell susceptible to a test compound wherein said susceptibility depends on a change in expression profile of a set of genes

whose expression levels are changed in the susceptible cell due to said test compound

5 (b) identifying a different cell from said susceptible cell wherein said different cell expresses the set of genes in the absence of treatment with test compound with the expression profile of said set of genes of said susceptible cell in the absence of a test compound ,

(c) producing test data identifying said different cell as a cell susceptible to said selected chemical agent.

10 24. The method of claim 23 wherein said different cell is a human cell.

25. The method of claim 23 wherein said susceptible cell is a cancer cell.

15 26. A method of identifying a cancer patient likely to respond positively to treatment with a selected anti-neoplastic agent comprising evaluating said patient's cancer for the presence of a cell equivalent to a different cell as identified by the method of claim 1 wherein said anti-neoplastic agent is the test compound of claim 1.

20 27. A method of identifying a cancer patient unlikely to respond positively to treatment with a selected anti-neoplastic agent comprising evaluating said patient's cancer for the absence of a cell equivalent to a different cell as identified by the method of claim 1 wherein said anti-  
25 neoplastic agent is the test compound of claim 1.